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Growing Chamaedoreas: Six Simple Leaved Ones

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This discussion on chamaedoreas will concern those that I have grown over the years in Miami, San Francisco, and Walnut Creek. Also I will touch on those I'm familiar with in southern California. It seems that in each of these climate zones some grow better than others, while other species excel in all zones. This will be the first of a series of articles about the various aspects of *Chamaedorea* culture.

I will refer to "Palms in Australia" by David Jones because it has nice color photographs and for the most part gives adequate descriptions.

Jones states there are 133 species of *Chamaedorea*. Dr. Hal Moore thought about 100, but there may be more. I have seen photographs taken by Dr. Bob Read and others of plants from South and Central America that look like *Chamaedorea*, but the palms had never been seen before, and are still not collected or identified. These unidentified exotics are mostly cloud forest palms that require exacting temperatures, humidity, and soil pH, and are not well suited for home or garden culture in the U.S.A. The cloud forest chamaedoreas seem to tolerate only a narrow temperature range somewhere in the 60's and 70's, with constant humidity, and just the right amount of subdued light. They don't like chemical fertilizers and are fussy about their growing medium—not ideal plants for the home environment. I have given up trying to grow the cloud forest chamaedoreas. They are often small and quite beautiful, but are so difficult to grow, they may bring disappointment.

There are some chamaedoreas that come from higher elevations that do well in coastal California, primarily in southern California. The temperatures in northern California are a little extreme for these palms to look their best, although they do grow here. Many of these are large clustering plants, and some are hybrids. Several years ago, a grower in southern California let me test some of his hybrids in Walnut Creek, where the climate is more extreme than in other areas of the San Francisco Bay area. These plants are too big for the house and must be protected in the winter. As an experiment, I left one out last winter under the protection of an oak and it was defoliated. I moved it back in the greenhouse before the winter was over, and it has recovered nicely. I will discuss the large species and hybrids in a later article.

Now for the ones that have survived my care! If you think the automobile companies put their wares to the test, think of what my chamaedoreas have gone through—drought, heat, dust, neglect, and sometimes too much attention.

If one had the room, the time, and the climate, just chamaedoreas alone could occupy all of a palm enthusiast's time. They did mine for many years, until I got stung by the *Rhapis* bug. Unfortunately, *Rhapis* don't lend themselves to fast growth, or hybridizing. The chamaedoreas are relatively fast growing, inexpensive, and with a little persistence, easy to acquire.

Rather than put them together botanically, which I am not qualified to do, I am

going to put them first in order of appearance, and discuss some later that seem to be closely related.

The Simple Leaved Ones

The simple or entire fronded ones: *C. metallica, C. ernesti-augusti, C. geonomiformis, C. fragrans, C. stolonifera* and *C. brachypoda* are six, easy-to-grow palms. They all require shade, and are frost tender. They will take temperatures right down to freezing, and maybe a little below, if frost is not allowed to form on the foliage, but they are all essentially tropical palms, so anything below freezing could be the end. *Chamaedorea fragrans* seems to be the most tropical of the group; it doesn't like cool nights. *C. metallica* and *C. geonomiformis* are the next in tenderness. Three of the six, *C. fragrans, C. stolonifera* and *C. brachypoda*, are clustering and are usually propagated by division. Their opposite sex often isn't around, and except for *C. fragrans*, they are easy to propagate vegetatively.

I'll start with *C. fragrans* (Fig. 1), a rare species, difficult to divide, and found only in botanical and a few private collections. Most of the original plants in this country came from David Barry. It was once considered endangered, but I think there are both sexes in south Florida now. *C. fragrans* is from Peru, where Allen Fernandez from Miami visited its habitat several years ago. He could find no seeds, but he has several plants which he brought back, presumably including both sexes. He said the *C. fragrans* were growing in a sandy, rather poor soil with about 2″ of mulch over it. Growing on the trees above them were *Platycerium andinium*, the only staghorn fern native to the Americas. *C. fragrans* is slow to grow from seed, and is probably best propagated by division. The base of each stem has a bulb-like swelling which will put out several pups if given time. This species won't tolerate much light and does better in my house than in the greenhouse, where it seems to tolerate low humidity. It thrives on neglect, and doesn't mind getting quite dry.

Secondly, *Chamaedorea stolonifera* is in my opinion, the best of all; this is a clustering palm with small stems less than ¼″ in diameter and was another David Barry introduction which, he told me, he found in France. It was lost to cultivation in the U.S.A. for many years until Barry found it. Hal Moore told me that it was probably extinct in the wild. It comes from that area in Mexico in Chiapas where the volcano blew up a few years ago. There couldn't have been much left after that, but from what I know, that is the area that *C. stolonifera* came from.

C. stolonifera is easy to grow and propagate. It throws out rather weird stolons above the soil surface, and after they are several inches or up to a few feet long, they anchor themselves on the soil and begin to grow a new plant. After the stolon grows to a certain length, it makes a swollen area along its stem. This can be easily "mossed," and within two or three months after roots have formed can be cut off to make a new plant. It is best to let three fronds form above the mossed area before it is severed from the mother plant. From that, you have a mature plant in two or three years.

Teddie Buhler has a clone of *C. stolonifera* that seems different from mine. I believe hers came from a botanical garden in Germany, but it has a slightly different appearance. She gave some to Fairchild Tropical Garden several years ago, and they have a large clump growing in the ground near the sink hole. Both clones are female.

Chamaedorea stolonifera and *C. brachypoda* are often confused, but *C. brachypoda* has been in cultivation for some time and is not so rare. It probably has the smallest trunk diameter of all the palms. *C. brachypoda* does not like strong chemical fertilizers, as they make the fronds develop brown tips. Fish emulsion seems to be the best substitute. *C. brachypoda* produces rhizomes below ground, while *C.*

1. *Chamaedorea fragrans*, photograph of a drawing by Phil Elia.

stolonifera "stolonates" above ground. The description of *C. brachypoda* in "Palms in Australia" is accurate; it should be noted that *C. brachypoda* has a thin papery texture and a lighter color than *C. stolonifera*. Of the six palms, *C. brachypoda* is the most difficult to grow to perfection as it often seems to become chlorotic and it is sensitive to low humidity, but it is well worth the effort. It should be in every enthusiast's collection.

C. stolonifera has a heavy textured, shiny frond and produces about five fronds a year per stem. It is somewhat resistant to red spider, but may get it sometimes, as the others do. An occasional spray under the foliage seems to keep the spider in check. *C. stolonifera* and *C. brachypoda*

can be bonsaied, but after about three or four years must be moved into a regular container.

The three remaining single trunked species must be grown from seeds. *C. geonomiformis* takes only about three years to start flowering after germination, *C. metallica* about three to four years, and *C. ernesti-augusti* about five to six years. To confuse the issue, I should mention that *C. metallica*, *C. ernesti-augusti*, *C. stolonifera*, and *C. sartori* (to be included later) are in the Eleutheropetalum group and were once classified in a different genus. I won't dwell on pollination or what will cross with what, since that will be in another article and will be lengthy and complicated.

I don't know why *C. ernesti-augusti* and *C. geonomiformis* are confused with each other. *C. ernesti-augusti* is about ten times as large, has entirely different flowers, and a lighter green foliage. *C. ernesti-augusti* has been in the trade for years, while *C. geonomiformis* has only been around for about the last fifteen, and I was the one who originally got *C. geonomiformis* out of the closet!

For many years, the only plants of *C. geonomiformis* known in cultivation were growing in the *Chamaedorea* collection at Fairchild Gardens and Paul Drummond had a few plants growing in his garden in Miami. When Paul's plants started producing seeds, he let me have all of them for the first few years. I grew them up and distributed the plants to palm society members in California and took plants back to Florida to members there. I gave Fairchild some young plants as their plants were getting old and leggy. Soon seeds were being produced from the plants that I distributed.

Finally, the Seed Bank received a lot of seeds and they were distributed far and wide. After propagating the plant for about ten years, I sort of lost interest in it and allowed my seeding plants to dwindle. Just last year, Jim Mintken gave me some seeds from plants that I had given him several years ago. How about that for a full circle? We plant collectors are fickle people.

Besides being a neat little plant and easy to grow in a home, I discovered something about *C. geonomiformis* that even Hal Moore didn't know.

Most of the chamaedoreas flower in the spring, grow their fruit in the summer, and mature in fall or the winter months. Every time I visited Paul Drummond, it seemed his female *C. geonomiformis* had a few ripe and green fruit on them. This puzzled me.

It was only after I observed my newly seeding plants that it occurred to me what was happening. I had hand pollinated my females the year before and had plenty of fresh pollen, so I was sure that every single flower had been pollinated. Only about ⅓ of the female flowers were producing seed the first year, but the flowers on the female spike that didn't seem to be pollinated didn't fall off, but remained firmly embedded on the inflorescence. (All the other *Chamaedorea* species abort their female flowers within two days to several weeks after anthesis if they aren't pollinated, the "eleutheropetalum" species usually within two days.)

One spring when both sexes of *C. geonomiformis* were blooming, something very strange was happening. I was pollinating the flowers on the newly emerged inflorescence, but I noticed that those old flowers on the year-old inflorescence were beginning to grow seed.

I thought to myself, "I've never heard of this before." After careful observation, I realized that this process had been going on for some time, but I hadn't been clever enough to realize it.

In addition to the ripe fruit, about ⅓ spaced at random along the inflorescence, and the young green fruit, there were a few others in varying stages of development. This was a great discovery for me, and I couldn't believe it. Sometime that same year or the next, Dr. Moore visited me, and I showed it to him. At first he couldn't believe it either, but as I related

my observations, and showed him the plants, he scratched his chin, shook his head, and said, "Amazing, this isn't recorded anywhere." Then he flew into me and "growers" in general for not recording these things. "You people," just don't know how important these things are, etc., etc. I'm sure I was always a "grower" to Hal, but it gave me a great deal of satisfaction to point out something that he didn't know.

I talked to Hal about how this phenomenon should be described, but he didn't have a ready answer. Fortunately, "National Geographic" had an article about kangaroos the same year, and they discussed "embryonic diapause," a situation where if the primary "joey" gets killed, there is another little thing there waiting to take its place. Embryonic diapause means arrested growth of the embryo. What happens in *C. geonomiformis* is a sort of parallel.

By producing seed over an extended period, *C. geonomiformis* has ripe seeds throughout the year, and when climatic conditions are right, they germinate to form new plants. When the female plants bloom in the spring, apparently hormones or enzymes are produced in the plants which stimulate the dormant, but pollinated embryos into producing fruit. As I said, approximately ⅓ of the dormant flowers produced fruit, and then the remaining flowers would produce sporadic fruit for the following year or two.

The peduncle of *C. geonomiformis* is quite small in diameter and grows to about eight inches long. At first they are vertical, but finally the weight of the fruit bends the peduncle down. The peduncle is covered with bracts which become papery in texture when they dry. After the bracts dry, I peel them away to expose the wiry peduncle which turns bright orange when exposed to light for a few weeks, as does the spike bearing the fruit at its tip.

C. geonomiformis gets very pale if given too much light. Grown in a subdued corner of the greenhouse or a home situation, it seems to be quite happy. It is a small palm about ¼ the size of *C. metallica* and will grow to maturity in a 1 gal. pot. Given subdued light and ample fertilizer, the shiny foliage turns dark green. The female plants are quite attractive when holding their green unripe fruit and ripe black fruit on the orange flower spikes. With its irregular maturation, there is always some fruit on the female, if they have been pollinated.

(I'm going to interrupt my dissertation on *C. geonomiformis* for a moment, because writing about it brings something very important to mind if one grows seeds of these plants.) What I am about to tell you is true, not only on the six simple fronded chamaedoreas, but on the others that I will discuss later on—in another article!

When chamaedoreas bloom, the inflorescence pushes out from the base of the leaf. This is that portion that surrounds the trunk of the plant. It could almost be called the crownshaft, such as is found on the royal palm. Because chamaedoreas are so small, this tubular leaf-base doesn't quite qualify as a crownshaft, but it is the same thing.

I like my palms to be tidy, so as the lower fronds fall away or are cut off, the old leaf-base will remain and turn brown or tan. I carefully remove these to expose the pretty green trunks. Nature put these things there for several reasons, and one is to give support to the peduncle and the weight of the fruit. When we hand pollinate, sometimes every single flower will set a seed. This seems more than nature planned and the structure of the plant may not support the weight of the fruit.

If the supporting leaf-base has been removed and the peduncle is growing from the exposed trunk, I tie green stretch tape around the trunk and the base of the peduncle. If the fruit is particularly heavy, I support the peduncle at about the middle of its length with more tape to the trunk.

This may sound a little extreme, but I can tell you there is nothing more heartbreaking than to have gone to the trouble of hand pollinating a *Chamaedorea*, and

watched the fruit grow for months, or with some of the hybrids two or three years, and then suddenly one day have the whole thing break away when you brush against it or because of the added weight of water when it is sprinkled.

I once had a *C. ernesti-augusti* female that I had crossed with *C. sartori*. It had two inflorescences loaded with almost mature fruit. They were still green; the seed aren't ripe until the fruit turns black. Paul Drummond came out to visit and blasted my greenhouse with the water hose. The added weight of the water on the seeds caused both peduncles to break away from the trunk. I could have killed him, but anyway I learned an important lesson.

What brought all this to mind is the fact that *C. geonomiformis* holds seeds for several years, and often the peduncles will be below the foliage on a bare trunk. *C. geonomiformis*, in particular, needs a little help if the fruit is to remain intact.

Does all the above make sense? The process wouldn't be necessary if one weren't so impatient to remove the old leaf-bases, or if there was not so much weight from the additional fruit caused by hand pollination.

Before I leave *C. geonomiformis* behind, it is worth referring to the pictures of it and *C. metallica* in *Principes*, Vol. 10, No. 2 with descriptions. Also, *C. metallica* used to be, and sometimes still is, mistakenly called *C. tenella*. *C. tenella* somewhat resembles *C. geonomiformis* but is more diminutive. Hal Moore told me that *C. tenella* might just be another form of *C. geonomiformis*. I didn't mention *C. tenella* in the easy to grow ones, because it is quite rare, and not very pretty. It is quite small and gets leggy later on.

Chamaedorea ernesti-augusti (Fig. 2) is quite an attractive plant, probably the most spectacular of the group, but I have stopped growing it because it takes up so much room. A mature plant is three to three and one half feet across. It is easy to grow and produces about five fronds a year. A healthy plant will hold about 10 fronds. Unless one lives in an area without frost, this plant just requires too much space and attention. I once had several of these, and they did well outside in the warm months. When I had to move them in, they took up half of my greenhouse, and the others in the house were always getting in my way. *C. ernesti-augusti* is somewhat susceptible to red spider, and unless it is perfectly grown can look untidy. If one of those big entire fronds get damaged, it detracts from the whole plant. I had perfect plants for many years, but with the addition of *Rhapis* and the attention of other things, I just had to let them go. I have finally and sadly replaced *C. ernesti-augusti* with *C. metallica*.

C. metallica (Fig. 3) is my current favorite. It doesn't take much room; it's about ⅓ the size of *C. ernesti-augusti*, and it is easy to grow. *C. metallica* has so many good things going for it that I'm surprised it's not more common. I don't know of any other palm that has such a heavy texture to the foliage and such a deep green color. It's tough too. The plants can be dropped, knocked over, walked into, and they just don't get damaged. (I've done all of the above!)

C. metallica tolerates the home environment better than any other palm I know of, even *Rhapis*! When a *Rhapis* dries out totally, it is usually dead. *C. metallica* starts to drop the lower fronds which is a clear warning, but recovers rapidly with a little water and tender loving care. *C. metallica* looks good grown as a single or several together in a larger pot. Because of the imposing foliage of *C. ernesti-augusti*, it should always be grown as a single.

C. metallica comes in several forms, the one most common is entirely fronded. I have developed the split-leaved one, and like it even better, because it has easy growth requirements, and if one of the leaflets gets damaged, it can be cut off and not detract from the entire plant.

2. *Chamaedorea ernesti-augusti*, photograph of a drawing by Phil Elia.

3. *Chamaedorea metallica*, photograph of a drawing by Phil Elia.

Every year when the first "warm rains" come I take the plants outside to be washed off. There is something about rain that is very beneficial. It dissolves all the dust and salts on the foliage and helps to dissolve the mineral deposits from the soil. I use rain water all winter, but bring it inside in buckets to warm to room temperature before watering. Perhaps it's the pH, but plants sure respond to rain water.

The entire fronds are easy to clean, and to groom the plants for shows, I wash them off with a fine spray from a garden hose and then let them dry in the shade. I then make a mixture of 2 qts. warm water, 1 cup white vinegar, and 2 tbl. spoons of Half & Half or whole milk. I wipe the foliage with a soft sponge using the above mixture. The vinegar dissolves water spots, and the oil from the milk leaves a soft natural-looking gloss.

Almost any kind of well draining potting soil seems to suit the chamaedoreas, although to the prepared soils that I use, I add Perlite for drainage and oxygen circulation to the roots and some coarse builders sand to add weight and substance.

I use Peters 20-20-20 for fertilizer, and always make sure that the plants have been watered the day before so there is no danger of burning the roots. Occasionally I alternate with fish emulsion which seems to supply the necessary micronutrients to the plants and also seems to condition the potting soil and make it more water retentive.

As a final note, and perhaps the most important of all, as the seasons change, I am careful to observe the amount of sunlight that falls on the plants. In the summer when the sun is most intense, the plants are moved to the most protected, shady locations. One should be particularly careful during the winter and spring when the sun angle is low on the horizon. The warm spring sun, at its lower angle, can burn plants sitting too close to a window or under an overhang. Scorched fronds are unsightly and it will take a year or more to replace the damaged fronds with new healthy foliage. A little precaution will prevent this most unfortunate occurrence, and then you will have some of the most beautiful small palms in the plant kingdom to admire and enjoy!

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